

Title (en)	THREE-DIMENSIONAL SEMICONDUCTOR MEMORY DEVICE AND ELECTRONIC SYSTEM INCLUDING THE SAME
Title (de)	DREIDIMENSIONALE HALBLEITERSPEICHERVORRICHTUNG UND ELEKTRONISCHES SYSTEM DAMIT
Title (fr)	DISPOSITIF DE MÉMOIRE À SEMI-CONDUCTEUR TRIDIMENSIONNEL ET SYSTÈME ÉLECTRONIQUE LE COMPRENANT
Publication	EP 4369882 A1 20240515 (EN)
Application	EP 23199237 A 20230922
Priority	KR 20220152031 A 20221114
Abstract (en)	<p>Disclosed are 3D semiconductor memory devices and electronic systems including the same. The 3D semiconductor memory device comprises a first substrate, a peripheral circuit structure on the first substrate, and a cell array structure on the peripheral circuit structure. The cell array structure includes a second substrate, a stack structure between the second substrate and the peripheral circuit structure and including interlayer dielectric layers and conductive patterns that are stacked alternately with the interlayer dielectric layers, vertical channel structures that include respective portions the stack structure and include vertical semiconductor patterns, respectively, and connection vias that include respective portions the second substrate and are connected to respective top surfaces of the vertical semiconductor patterns.</p>
IPC 8 full level	H10B 43/27 (2023.01); H10B 43/40 (2023.01); H10B 43/50 (2023.01)
CPC (source: CN EP KR US)	H01L 23/5226 (2013.01 - US); H01L 23/5283 (2013.01 - US); H01L 25/0652 (2013.01 - US); H10B 41/10 (2023.02 - US); H10B 41/27 (2023.02 - KR US); H10B 41/35 (2023.02 - KR US); H10B 41/40 (2023.02 - KR); H10B 41/41 (2023.02 - US); H10B 41/50 (2023.02 - KR); H10B 43/10 (2023.02 - US); H10B 43/27 (2023.02 - CN EP KR US); H10B 43/35 (2023.02 - CN KR US); H10B 43/40 (2023.02 - EP KR US); H10B 43/50 (2023.02 - CN EP KR); H10B 80/00 (2023.02 - US); H01L 2225/06541 (2013.01 - US)
Citation (search report)	<ul style="list-style-type: none">[X] US 2021375914 A1 20211202 - ZHANG KUN [CN][A] EP 3172766 A1 20170531 - INTEL CORP [US][A] US 2014193969 A1 20140710 - HULL JEFFERY B [US], et al
Designated contracting state (EPC)	AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated extension state (EPC)	BA
Designated validation state (EPC)	KH MA MD TN
DOCDB simple family (publication)	EP 4369882 A1 20240515; CN 118042840 A 20240514; KR 20240070305 A 20240521; US 2024164101 A1 20240516
DOCDB simple family (application)	EP 23199237 A 20230922; CN 202311494645 A 20231110; KR 20220152031 A 20221114; US 202318355450 A 20230720